

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application:

LISTING OF CLAIMS:

1. (Currently Amended) An interferometric measuring device for measuring a surface of an object by depth scanning, the device comprising:

a short-coherent light source for emitting light;

a beam splitter, the emitted light being guided to the beam splitter, the beam splitter producing an object beam which is directed via an object beam path to the object and a reference beam ~~which is directed via a reference beam~~ which is directed via a reference beam path to a reference surface;

an image recorder for recording the light reflected back by the object surface and by the reference surface and combined for interference;

an evaluation device for determining a surface shape; and

at least one active optical element that may be influenced by at least one of an electrical field and a magnetic field, the optical element being situated in at least one of the object beam path and the reference beam path, the optical element being adapted to change an optical length of an object light path in relation to an optical length of a reference light path for a depth scanning;

wherein the at least one active optical element includes a first active optical element situated in one of the object beam path and the reference beam path for changing an optical light path for the depth scanning and a second active optical element situated in another of the object beam path and the reference beam path for at least one of a color error correction and an imaging error correction.

2. (Original) The device according to claim 1, wherein the at least one active optical element includes at least one electro-optical element.

Claim 3. (Canceled).

4. (Original) The device according to claim 1, wherein a non-homogeneous electrical field is applied to the at least one active optical element for a controlled deformation of a relevant wavefront.

5. (Original) The device according to claim 1, wherein the at least one active optical element has a non-homogeneous optical density for influencing a wavefront in a controlled manner.

6. (Original) The device according to claim 1, wherein the at least one optical element includes at least one of a lens, a lens system, a part of a lens system, and at least a part of light-diverting optical media.

7. (New) The device according to claim 1, where in the interferometric measuring device includes a white-light interferometer, and at least one of the active optical elements and a control device for the at least one of the active optical are designed to carry out depth scanning, for the depth scanning, the optical length of the object light path changeable relative to the optical length of the reference light path without mechanical moving parts.

8. (New) The device according to claim 7, wherein the at least one of the first active optical element and second active optical element includes at least one electro-optical element.

9. (New) The device according to claim 7, wherein a non-homogeneous electrical field is applied to the at least one of the first active optical element and second active optical element for a controlled deformation of a relevant wavefront.

10. (New) The device according to claim 7, wherein the at least one of the active optical elements includes a non-homogeneous optical density for influencing a wavefront in a controlled manner.

11. (New) The device according to claim 7, wherein the at least one of the active optical elements includes at least one of a lens, a lens system, a part of a lens system, and at least a part of light-diverting optical media.

12. (New) An interferometric measuring device for measuring a surface of an object by depth scanning, the device comprising:

a short-coherent light source for emitting light;
a beam splitter, the emitted light being guided to the beam splitter, the beam splitter producing an object beam which is directed via an object beam path to the object and a reference beam which is directed via a reference beam path to a reference surface;
an image recorder for recording the light reflected back by the object surface and by the reference surface and combined for interference;
an evaluation device for determining a surface shape; and
at least one active optical element that may be influenced by at least one of an electrical field and a magnetic field, the optical element being situated in at least one of the object beam path and the reference beam path, the optical element being adapted to change an optical length of an object light path in relation to an optical length of a reference light path for a depth scanning, the interferometric measuring device arranged as a white-light interferometer, for the depth scanning, the optical length of the object light path is changeable relative to the optical length of the reference light path without mechanically moving parts.

13. (New) The device according to claim 12, wherein the at least one active optical element includes at least one electro-optical element.

14. (New) The device according to claim 12, wherein the at least one active optical element includes an active optical element situated in another of the object beam path and the reference beam path for at least one of a color error correction and an imaging error correction.

15. (New) The device according to claim 12, wherein a non-homogeneous electrical field is applied to the at least one active optical element for a controlled deformation of a relevant wavefront.

16. (New) The device according to claim 12, wherein the at least one active optical element has a non-homogeneous optical density for influencing a wavefront in a controlled manner.

17. (New) The device according to claim 12, wherein the at least one optical element includes at least one of a lens, a lens system, a part of a lens system, and at least a part of light-diverting optical media.